Appendix A:
Air Quality and GHG Modeling Data

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AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

CARNEGIE AVENUE RESIDENTIAL PROJECT

CITY OF COSTA MESA

LEAD AGENCY:
CITY OF COSTA MESA

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PROJECT NO. 15072

SEPTEMBER 21, 2016

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ACRONYMS AND ABBREVIATIONS

Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
GHG	Greenhouse gas
GWP	Global warming potential
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LST	Localized Significant Thresholds
MSAT	Mobile Source Air Toxics
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
O_3	Ozone
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion

PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality and Greenhouse Gas Emissions Impact Analysis has been completed to determine the air quality and greenhouse gas (GHG) emissions impacts associated with the proposed Carnegie Avenue Residential Project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP).
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the central portion of the City of Costa Mesa (City) on the northwest corner of Carnegie Avenue and Fair Drive. The approximately 1.66 acre project site is improved with a 20,745 square foot two-story commercial building that contains various businesses, including medical offices, bail bonds, a pizzeria and cyber café and a 165-space parking lot. The project site is bounded by a car dealership to the north, Carnegie Avenue and single-family homes to the east, Fair Drive and multi-family homes to the south, a gas station with a car wash and Harbor Boulevard to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest offsite sensitive receptors to the project site consist of single-family homes, located as near as 80 feet east of the project site and multi-family homes, located as near as 110 feet south of the project site. The nearest schools to the project site are Orange Coast College, that is located as near as 1,500 feet northeast of the project site and College Park Elementary School that is located as near as 0.4 mile southeast of the project site.

1.3 Proposed Project Description

The proposed project would consist of demolition of the existing mixed-use commercial building and parking lot onsite and development of eight (8) three-story detached single-family homes with 2,020 square feet of living space and twenty (20) three-story attached single-family homes with 1,863 square feet of living space. Project demolition and grading is anticipated to begin early 2017 and project buildout is expected to be completed by early 2018. The proposed site plan is shown in Figure 2.

1.4 Standard Air Quality and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable to all residential projects in the South Coast Air Basin (Air Basin).

Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

Rule 1403 – Asbestos Removal

Rule 1403 governs asbestos emissions from demolition and renovation activities. The existing structures on the project site shall be surveyed for asbestos prior to demolition activities. If asbestos is found within the existing structures, the asbestos shall be removed through utilization of the removal procedures detailed in Rule 1403.

State of California Rules

The following lists the State of California rules that are applicable to all residential projects in the State.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the California Air Resources Board (CARB) adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce diesel particulate matter (DPM) and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24) 2013 Building Standards that became effective on July 1, 2014 now require all hot water pipes to be insulated, the use of higher performance windows, installation of whole house fans, increased wall insulation, mandatory duct sealing, and require all roofs to be solar-ready to facilitate future solar systems, as well as several other energy efficiency requirements that are summarized at: (http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html).

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) requires that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for residential buildings include a 20 percent reduction of potable water use within buildings through use of low-flow fixtures, a 50 percent construction waste diversion from landfills, use of building finish materials and carpets that emit low levels of volatile organic compounds, and bathroom ventilation fans are required to be Energy Star compliant and controlled by a humidity sensor switch.

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than significant impact.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Create objectionable odors affecting a substantial number of people?

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

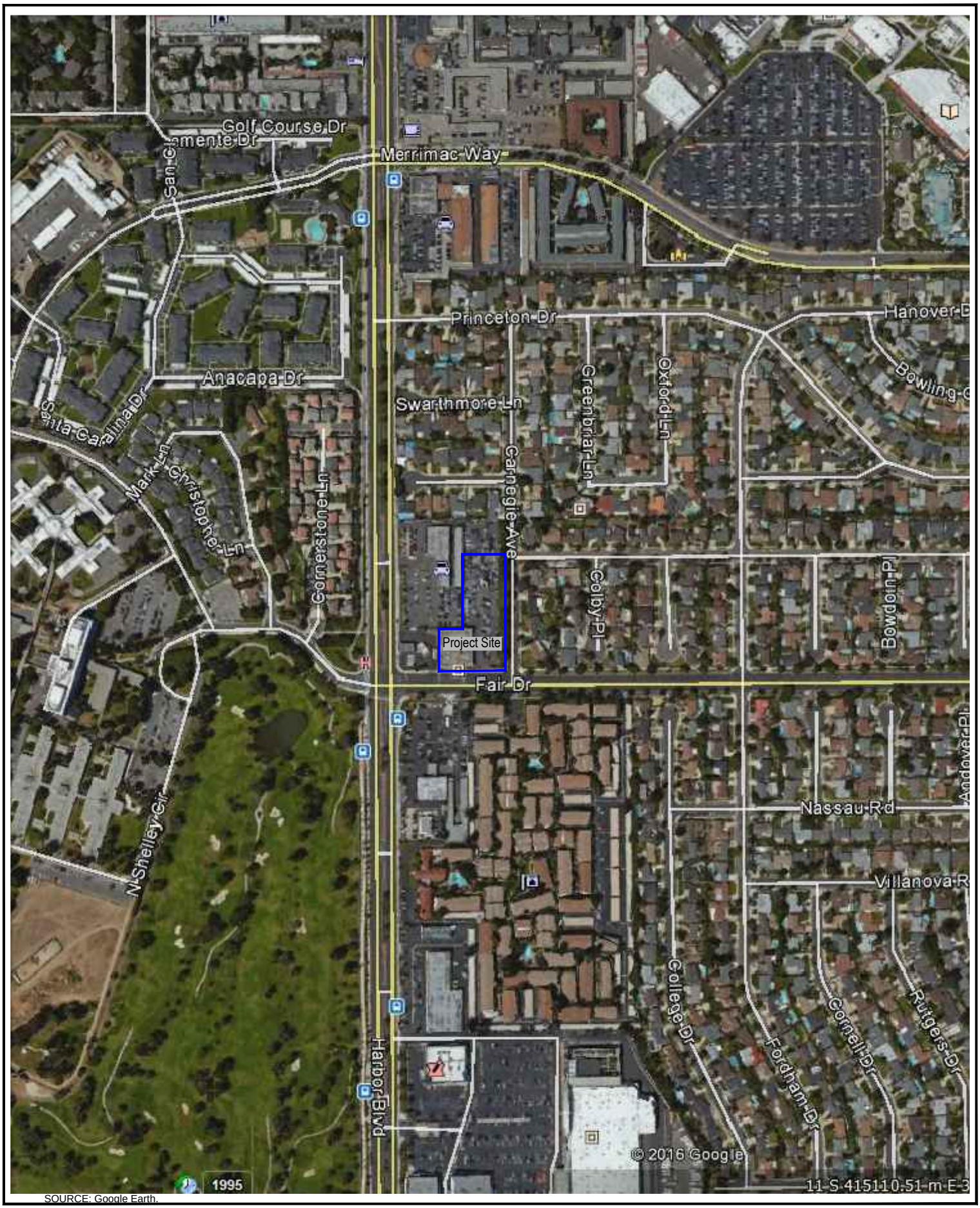
Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

1.6 Mitigation Measures Required for the Proposed Project

This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.



SOURCE: Google Earth.

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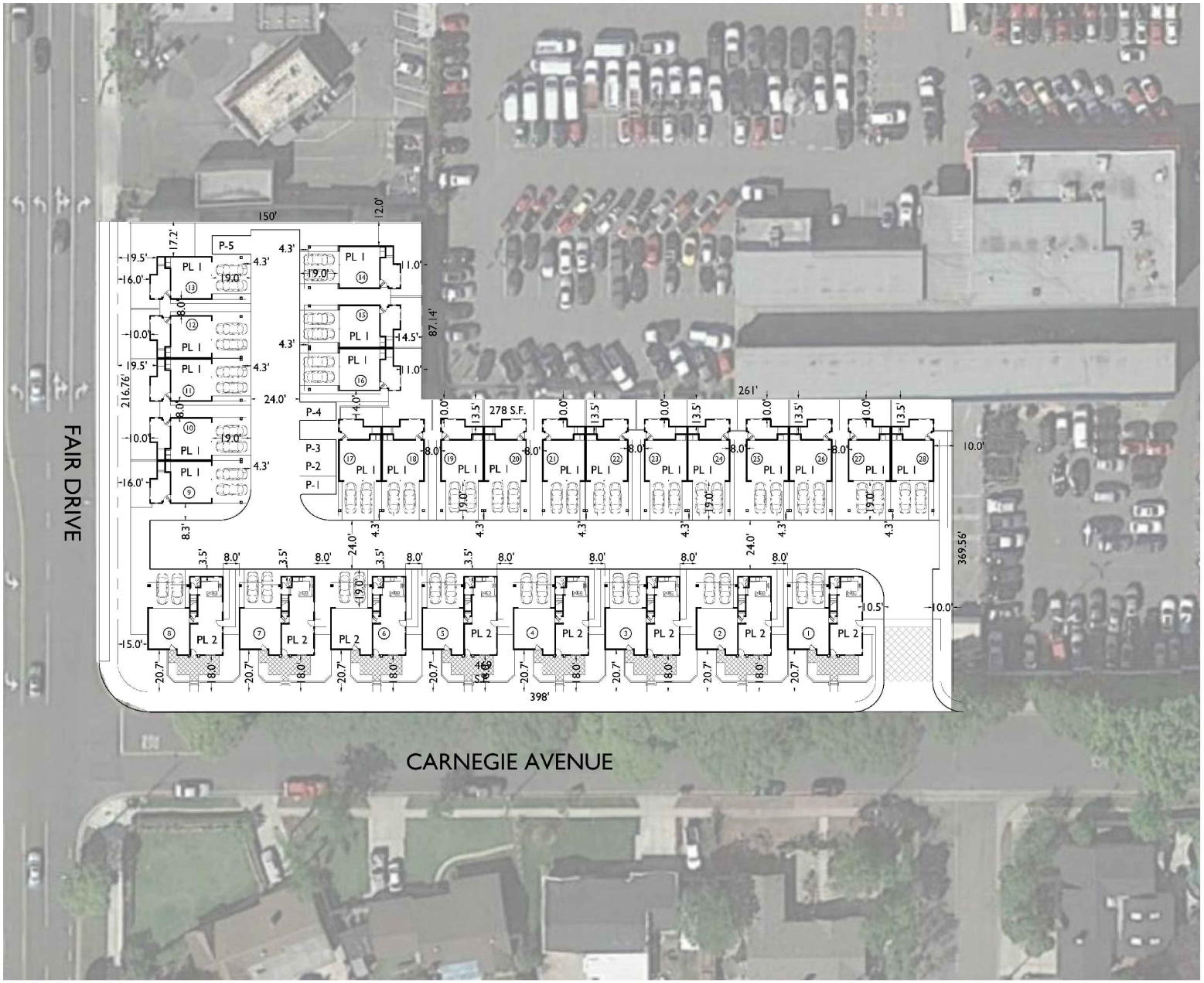
Figure 1
Project Local Study Area



SITE PLAN SUMMARY

OWNER:	SHELDON DEVELOPMENT, LLC. 901 DOVE STREET, SUITE 230 NEWPORT BEACH, CA 92660 PHONE: (949)777-9400
SITE ADDRESS:	FAIR DRIVE AT CARNEGIE
PROPOSED UNITS:	28 HOMES 20 - 3 STORY DUPLEX 8 - 2 STORY DETACHED
LOT AREA:	72,310 S.F. (1.66 ACRES)
DENSITY:	16.25 UNITS PER ACRE

SITE SUMMARY:

BLDG FOOTPRINTS:	21,060 S.F. (31.5%)
PRIV. STREETS/DRIVES:	24,150 S.F. (29.2%)
OPEN SPACE:	22,808 S.F. (31.5% AT GRADE)
BALCONIES	1,080 S.F. (2ND FLOOR)
ROOF DECKS	8,000 S.F.
TOTAL OPEN SPACE	31, 888 S.F. (44.0%)

PLAN SUMMARY:

		LIVABLE AREA
3 STORY - 4 BDRM		
PLAN 1	1ST FLR	166 S.F.
	2ND FLR	897 S.F.
	3RD FLR	809 S.F.
	TOTAL LIVABLE	1,872 S.F.
	GARAGE	471 S.F.
	BALCONY	54 S.F.
	ROOF DECK	400 S.F.
3 STORY - 3 BDRM		
PLAN 2	1ST FLR	609 S.F.
	2ND FLR	1,185 S.F.
	3RD FLR	300 S.F.
	TOTAL LIVABLE	2,094 S.F.
	GARAGE	453 S.F.

PARKING SUMMARY:

REQUIRED PARKING = 20 UNITS X 4 STALLS/UNIT = 80 STALLS
8 UNITS X 4 STALLS/UNIT = 32 STALLS
112 STALLS

PLAN 1	2 CAR ATTACHED GARAGE X 20 UNITS =	40 STALLS
PLAN 2	2 CAR ATTACHED GARAGE X 8 UNITS =	16 STALLS
GUEST	PRIVATE DRIVE STALLS =	56 STALLS
GUEST	ADD'L OPEN UNASSIGNED STALLS =	5 STALLS
		117 STALLS

BUILDING HEIGHT: 3 STORIES, 44'-0" MAXIMUM HEIGHT

SOURCE: Summa Architecture, May 2, 2016.

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Figure 2
Proposed Site Plan

2.0 POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen oxides, carbon monoxide, sulfur oxides, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

Nitrogen Oxides

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath

a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

Sulfur Oxide (SOx) gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

Particle matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and

acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 82 miles east of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

2.3 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to

human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and Chlorofluorocarbons (CFCs)). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the

incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

2.4 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. The GWP of CO_2 is by definition, 1. The GWP values used in this analysis are based on the IPCC Second Assessment Report (SAR) and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and are detailed in Table A. The SAR GWPs are used in CARB's California inventory and AB32 Scoping Plan estimates.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	21	1,774 ppb
Nitrous Oxide (N_2O)	120	310	319 ppb
HFC-23	264	11,700	18 ppt
HFC-134a	14.6	1,300	35 ppt
HFC-152a	1.5	140	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	6,500	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	9,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	23,900	5.6 ppt

Notes:
[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions.
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC, 2007.

3.0 AIR QUALITY MANAGEMENT

3.1 Regulatory Setting

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table C.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

On December 14, 2012, the EPA revised the primary annual PM2.5 NAAQS from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ and retained the 24 hour PM2.5 standard at 35 $\mu g/m^3$ in order to provide increased protection for children, older adults, persons with pre-existing heart and lung disease and other at risk populations.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10}) Suspended Particulate Matter ($PM_{2.5}$)	50 µg/m^3 / 24-hour 20 µg/m^3 / annual 12 µg/m^3 / annual	150 µg/m^3 / 24-hour 35 µg/m^3 / 24-hour 12 µg/m^3 / annual	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone (O_3) and suspended particulates (PM10 and PM2.5) and partial non-

attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

Table C – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 Originally 11/15/2010 (not attained)[c)]
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[d)]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Designations Pending	~2037
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2[e)]	NAAQS	1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO_2[f)]	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-hour (150 $\mu g/m^3$)	Attainment (Maintenance)[g)]	7/26/2013 (attained)
	CAAQS	24-hour (50 $\mu g/m^3$) Annual (20 $\mu g/m^3$)	Nonattainment	N/A
PM2.5[h)]	NAAQS	2006 24-Hour (35 $\mu g/m^3$)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 $\mu g/m^3$)	Nonattainment	4/5/2015
	NAAQS	2012 Annual (12.0 $\mu g/m^3$)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 $\mu g/m^3$)	Nonattainment	N/A
Lead	NAAQS	3-Months Rolling (0.15 $\mu g/m^3$)	Nonattainment (Partial)	12/31/2015

Source: SCAQMD, February 2016

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements

d) 1997 8-hour O_3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O_3 standard is still subject to anti-backsliding requirements

e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO2 standard retained

f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are still pending, with Basin

expected to be designated Unclassifiable /Attainment.
g) Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
h) Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 $\mu g/m^3$. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.
i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data.

In 2011, the Air Basin exceeded federal standards for either ozone or PM2.5 at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM2.5. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Air Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County). (SCAQMD 2012)

PM2.5 in the Air Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Air Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM2.5 NAAQS and the 98th percentile form of the 24-hour PM2.5 NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM2.5 24-hour standard level was exceeded in 2011 on 17 sampling days. (SCAQMD 2012)

The Air Basin is currently in attainment for the federal standards for NO_2. While the concentration level of the new 1-hour NO_2 federal standard (100 ppb) was exceeded in the Air Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO_2 design value has not been exceeded. (SCAQMD 2012) Therefore, the Basin remains in attainment of the NO_2 NAAQS.

Although much of the South Coast Air Basin, including the proposed site location of San Bernardino County, is in attainment for lead, the EPA designated the Los Angeles County portion of the Air Basin as nonattainment for the revised (2008) federal lead standard (0.15 $\mu g/m^3$, rolling 3-month average). This was due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the revised standard in the 2007-2009 period of data used. For the most recent 2009-2011 data period, only one of these stations (Vernon) still exceeded the lead standard. The *2012 Lead State Implementation Plan Los Angeles County*, prepared by SCAQMD and adopted on May 4, 2012, provides measures to meet attainment of lead by December 31, 2015.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). Implementation of the rule has been temporarily frozen by a legal challenge from 29 states, pending review by the Washington DC circuit court of appeals scheduled for June 2016.

State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10, PM2.5 and lead. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, NO_2, SO_2, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

In 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. In 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California.

CARB is also responsible for regulations pertaining to Toxic Air Contaminants (TACs). The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB also proposed interim statewide CEQA thresholds for GHG emissions and released *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California*

Environmental Quality Act, on October 24, 2008. The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

Executive Order B-30-15

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. As B-30-15 is a state-level executive order, it is not legally enforceable for local governments and the private sector, but legislation for post-2020 targets and requirements is pending in the State Legislature.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109), which also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations "Pavley II" is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing greenhouse gas emissions to 2000 levels by 2010.

Assembly Bill 32

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 million metric tons of CO2e ($MMTCO_2e$). The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Senate Bill 1368

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September 2006. SB 1368 requires that the California Public Utilities Commission (CPUC) establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate

from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by CPUC and California Energy Commission (CEC).

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09

Senate Bill 1078 (SB 1078) requires retail sellers of electricity to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. On May 31, 2012 the Energy Commission adopted the proposed 2013 Building Standards that became effective on July 1, 2014. The 2013 Building Standards are anticipated to reduce energy use in residential buildings by 25 percent over the 2008 Standards and now require all hot water pipes to be insulated, the use of higher performance windows, installation of whole house fans, increased wall insulation, mandatory duct sealing, as well as requiring all roofs to be solar-ready to facilitate future solar systems (http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html). The standards are updated on a three-year schedule, with the 2016 update to go into effect on January 1, 2017.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The most current version is the 2013 California Green Building Standards Code (CalGreen), which became effective on January 1, 2014 and replaced the 2010 CalGreen. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for residential uses include a 20 percent reduction of potable water use within buildings through the use of low-flow faucets, outdoor water use is reduced through the use of smart irrigation system controllers, a 50 percent construction waste diversion from landfills, and use of building finish materials that emit low levels of volatile organic compounds.

Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2012 Air Quality Management Plan* (2012 AQMP) was adopted by the SCAQMD Board on December 7, 2012 and was adopted by CARB via Resolution 13-3 on January 25, 2013. The 2012 AQMP was prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM2.5 non-attainment areas prepare a SIP, that were required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM2.5 standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-

hour PM2.5 standard by 2014 in the Air Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM2.5 emissions standards.

The 2012 AQMP is designed to satisfy the California Clean Air Act's (CCAA) emission reductions of 5 percent per year or adoption of all feasible measures requirements and fulfill the EPA's requirement to update transportation conformity emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2012 AQMP updates and revises the previous 2007 AQMP. The 2012 AQMP was prepared to comply with the Federal and State CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the Air Basin, to meet Federal and State ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2012 AQMP for the Air Basin is to set forth a comprehensive program that will lead this area into compliance with all federal and state air-quality planning requirements.

The 2012 AQMP builds upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as LPG transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. Composting waste was revised and now includes the emissions from green waste composting covered under SCAQMD Rule 1133.3. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: 1) Basin-wide and episodic short-term PM2.5 measures; 2) Section 182(e)(5) implementation measures; and 3) Transportation control measures. Many of the control measures are not based on command and control regulations, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes. More broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals. Many of the same technologies will address both air quality and climate needs.

In January 2016, the SCAQMD released a fact sheet on its forthcoming 2016 Air Quality Management Plan. The plan will develop integrated strategies and measures to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)

- 24-hour PM2.5 (35 µg/m3) by 2019 (updated from the 2012 AQMP)

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the RTP/SCS and *Regional Transportation Improvement Plan* (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, RTIP, and AQMP are based on projections originating within the City and County General Plans.

Local – City of Costa Mesa

Local jurisdictions, such as the City of Costa Mesa, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2007 AQMP and 2012 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

4.0 ATMOSPHERIC SETTING

4.1 Local Climate

The project site is located within the central coastal portion of Orange County in the City of Costa Mesa, which is part of the South Coast Air Basin (Air Basin) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Orange County is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern.

Although the Air Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the Air Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as "high fog" are a characteristic climate feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in Orange County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean. These winds are usually the strongest in the dry summer months. Nighttime winds in Orange County are a result mainly from the drainage of cool air off of the mountains to the east and they occur more often during the winter months and are usually lighter than the daytime winds. Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day.

During the winter and fall months, surface high-pressure systems north of the Air Basin combined with other meteorological conditions, can result in very strong winds, called "Santa Ana Winds", from the northeast. These winds normally have durations of a few days before predominant meteorological conditions are reestablished. The highest wind speed typically occurs during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. It is not uncommon to have sustained winds of 60 miles per hour with higher gusts during a Santa Ana Wind event.

The temperature and precipitation levels for Newport Beach Harbor Station, which is the closest meteorological station to the project site is shown below in Table D. Table D shows that August is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table D – Monthly Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Max. Temperature	63.2	63.4	63.9	65.2	67.0	69.1	72.2	73.4	73.0	70.9	67.8	64.2
Average Min. Temperature	46.9	48.2	49.8	52.3	56.0	59.1	62.2	63.2	61.2	57.2	51.4	47.5
Average Total Precipitation (in.)	2.19	2.30	1.72	0.92	0.23	0.07	0.01	0.06	0.21	0.38	1.08	1.85

Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6175

4.2 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in air monitoring area 18, which covers the northwest coastal portion of Orange County. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used; Costa Mesa-Mesa Verde Monitoring Station (Costa Mesa Station) and Anaheim-Pampas Lane Monitoring Station (Anaheim Station).

The Costa Mesa Station is located approximately 0.8 mile northwest of the project site at 2850 Mesa Verde Drive East, Costa Mesa. The Anaheim Station is located approximately 11.3 miles north of the project site at 1630 Pampas Lane, Anaheim. Table E presents the monitored pollutant levels from these Monitoring Stations. Ozone, CO, and NO_2 were measured at the Costa Mesa Station and PM10 and PM2.5 were measured at the Anaheim Station. However, it should be noted that due to the air monitoring stations distances from the project site, recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table E presents the monitored pollutant levels from the Costa Mesa and Anaheim Stations. Table E shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below. It should be noted that CO is currently in attainment in the Air Basin and that monitoring of CO within the Air Basin ended on March 31, 2013.

Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded one time each year at the Costa Mesa Station. The State 8-hour ozone standard has been exceeded between 2 and 6 days each year over the past three years at the Costa Mesa Station. The Federal 8-hour ozone standard has been exceeded between 1 and 4 days each year over the past three years at the Costa Mesa Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Costa Mesa Station did not record an exceedance of the Federal 1-hour NO_2 standard for the last three years.

Table E – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year[1] 2013	2014	2015
Ozone:[1]			
Maximum 1-Hour Concentration (ppm)	0.095	0.096	0.099
Days > CAAQS (0.09 ppm)	1	1	1
Maximum 8-Hour Concentration (ppm)	0.083	0.079	0.079
Days > NAAQS (0.075 ppm)	1	4	1
Days > CAAQs (0.070 ppm)	2	6	2
Nitrogen Dioxide:[1]			
Maximum 1-Hour Concentration (ppb)	75.7	60.6	52.4
Days > NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10):[2]			
Maximum 24-Hour California Measurement (ug/m^3)	77	84	59
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	1	**2**	**2**
Annual Arithmetic Mean (AAM) (ug/m^3)	25.4	26.8	25.5
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):[2]			
Maximum 24-Hour National Measurement (ug/m^3)	37.8	45.0	45.8
Days > NAAQS (35 ug/m^3)	**1**	**4**	**3**
Annual Arithmetic Mean (AAM) (ug/m^3)	10.1	16.1	14.8
Annual > NAAQS and CAAQS (12 ug/m^3)	No	**Yes**	**Yes**

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion.
[1] Data obtained from Costa Mesa Station.
[2] Data obtained from Anaheim Station.
Source: http://www.arb.ca.gov/adam/

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 1 and 2 days each year over the past three years at the Anaheim Station. Over the past three years the Federal 24-hour standard for PM10 has not been exceeded at the Anaheim Station. The annual PM10 concentration at the Anaheim Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between 1 and 4 days each year over the past three years at the Anaheim Station. The annual PM2.5 concentration at the Anaheim Station has exceeded the State and Federal standard for two of the past three years. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

4.3 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project site has an estimated cancer risk of 751 per million persons chance of cancer. In comparison, the average cancer risk for the Air Basin is 991 per million persons, which is based on the use of age-sensitivity factors detailed in the OEHHA Guidelines (OEHHA, 2015).

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

5.0 MODELING PARAMETERS AND ASSUMPTIONS

5.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2013.2.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2011 computer program to calculate the emission rates specific for Orange County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2011 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod were set to a project location of Orange County, a Climate Zone of 8, land use setting of Urban, operational year of 2018, and utility company of Southern California Edison.

Land Use Parameters

The proposed project would consist of development of eight detached single-family homes and 20 attached single-family homes. A summary of the proposed project's development is shown above in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size	Lot Acreage	Building/Paving (square feet)
Detached Single-Family Homes	Single Family Housing	8 DU	0.41	23,958
Attached Single-Family Homes	Condo/Townhouse	20 DU	0.7	37,260
Private Street and Driveways	Other Asphalt Surfaces	0.55 AC	0.55	23,958

Notes: DU = Dwelling Unit; AC = Acres

Construction Parameters

Construction activities are anticipated to start around January 2017 and take approximately 12 months to complete. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed below and include: 1) demolition, 2) grading, 3) building construction, 4) paving, and 5) application of architectural coatings.

<u>Demolition</u>

There is currently a 20,745 square foot two-story commercial building and a 165-space parking lot that would be demolished for development of the proposed project. It has been estimated that there is approximately 1.2 acres of paved area on the project site that would be removed with development of the proposed project. Based on an average of 4-inch thick pavement, this would require the removal of 17,424 cubic feet of pavement. The average weight of pavement is 145 pounds per cubic foot. This results in 1,263 tons of pavement that would be required to be removed from the project site. For the existing commercial building, CalEEMod utilizes a factor of 0.046 tons of debris of building material per building square foot. This results in 954 tons of debris that would be generated from demolition of the 20,745 square foot building. Therefore, the combined demolition of the pavement and building would

require the removal of 2,218 tons of building material that would be exported from the project site and would require 219 haul truck trips.

The demolition phase is anticipated to start around January 2017 and is anticipated to take approximately one month to complete. The demolition activities would require up to 13 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the demolition phase. The onsite equipment would consist of one concrete saw, one rubber tired dozer, and three of either a tractor, loader or backhoe, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Grading

The grading phase would occur after the completion of the site preparation phase and is anticipated to take approximately two weeks to complete. The proposed grading is balanced, which would result in no dirt being imported or exported from the project site. The grading activities would require up to 8 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the grading phase. The onsite equipment would consist of the simultaneous operation of one grader, one rubber tired dozer, and one of either a tractor, loader or backhoe, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Building Construction

The building construction would occur after the completion of the grading phase. The building construction phase was modeled based on occurring over 10 months. The building construction would require up to 27 worker trips and 7 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, one forklift, one generator set, three welders, and one of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

Paving

The paving would occur after the completion of the building construction phase. The paving phase was modeled based on the paving of the onsite roads that would require paving approximately 0.55 acres of the project site. The paving activities would occur over two weeks and would require up to 13 worker trips per day. The onsite equipment would consist of the simultaneous operation of one cement mixer, one paver, one paving equipment, and one roller, and one of either a tractor, loader or backhoe, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings would occur after the completion of the paving phase. The architectural coating phase was modeled based on covering 108,176 square feet residential interior area, 36,059 square feet residential exterior area, and 47,916 square feet of non-residential area that includes striping on the streets, painting of signs, and other architectural coatings in public areas. The architectural coating phase would occur over one month and would require up to five worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the

CalEEMod model based on the land use parameters provided above. The criteria pollutant analysis operating emissions were based on the year 2018, which is the anticipated opening year for the proposed project.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trip rates from the Traffic Impact Analysis, prepared by Infrastructure Group, Inc., for the proposed project into the CalEEMod Model. The Traffic Impact Analysis found that the proposed project would create 213 trips per day, which is based on each proposed home generating 7.61 trips per weekday. It should be noted that the current commercial use on the project site currently generates traffic, however no trip reduction was applied in order to provide a conservative analysis. The CalEEMod default vehicle trip lengths of 14.7 miles for home to work, 5.9 miles for home to shopping, and 8.7 miles for home to other locations were also used in the analysis. No other changes were made to the CalEEMod default mobile source parameters.

Area Sources

Area sources include emissions from hearths, consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed 8 single-family homes and 20 townhomes in the CalEEMod model. The project applicant has stated that no fireplaces would be constructed in the proposed townhomes. Therefore, the CalEEmod model was set to 28 dwelling units with no fireplaces or woodstoves. No other changes were made to the default area source parameters.

Energy Usage

Energy usage includes emissions from natural gas used on-site. The energy usage was based on the on-going use of the proposed 8 single-family homes and 20 townhomes in the CalEEMod model. No changes were made to the default energy usage parameters.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod waste generation rates of 18.6 tons of solid waste per year from the 8 single-family homes and 20 townhomes. All emission factors were based on the default emission levels in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The analysis was based on the default CalEEMod water usage rate of 1,824,313 gallons per year of indoor water usage and 1,150,110 gallons per year of outdoor water usage from the 8 single-family homes and 20 townhomes. No changes were made to the default water and wastewater parameters in the CalEEMod model.

6.0 THRESHOLDS OF SIGNIFICANCE

6.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table G.

Table G – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

6.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. The project site is 1.66-acres, which is a closest match to the 2-acre project site provided in the Look-Up Tables. As detailed above in Section 4.2, the project site is located in Air Monitoring Area 18, which covers north coastal Orange County. The nearest sensitive receptors are single-family homes, located as near as 80 feet east of the project site. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. Table H below shows the LSTs for NO_2, PM10 and PM2.5 for both construction and operational activities.

Table H – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	131	962	7	5
Operation	131	962	2	2

Notes:
[1] The nearest sensitive receptors are single-family homes located as near as 80 feet east of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two acres in North Coastal Orange County.

6.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to hazardous air pollutants (HAP), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create HAPs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the HAP and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

6.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

6.5 Greenhouse Gases

The proposed project is located within the jurisdiction of the SCAQMD. In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,500 $MTCO_2e$ for

residential projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, they have not been formally adopted because the SCAQMD was awaiting the outcome of the pending appeal of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,500 $MTCO_2e$.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and global climate change would occur if the proposed project is determined to result in:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

7.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable GPs and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 6.1 or local thresholds of significance discussed above in Section 6.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 6.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, no long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The *2012-2035 Regional Transportation/Sustainable Communities Strategy* consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Costa Mesa Land Use Plan defines the assumptions that are represented in the AQMP.

The project site is currently designated as Neighborhood Commercial in the General Plan and zoned Local Business (C1). The proposed project would require a General Plan Amendment that would re-designate the project site to High-Density Residential and rezoned to Multiple-Family Residential High Density (R2-HD). Although the proposed project is currently inconsistent with the General Plan land use designation and zoning for the project site, the proposed project would be consistent with the adjacent residential land uses and would be in substantial compliance with the Land Use Element goals and policies. Therefore, due to the proposed project's nominal size and consistency with the surrounding neighborhood, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. Furthermore, the proposed project consists of an infill residential development in an area of Southern California that has a shortage of housing. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

Level of Significance

Less than significant impact.

7.3 Air Quality Standard Violation

The proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Construction Emissions

The proposed project would consist of construction of eight detached single-family homes and 20 attached single-family homes with associated onsite roadway improvements. The construction emissions have been analyzed for both regional and local air quality impacts as well as potential toxic air impacts.

Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 5.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table I and the CalEEMod daily printouts are shown in Appendix A. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table I also shows the combined criteria pollutant emissions from building construction, paving and architectural coating phases of construction.

Table I – Construction-Related Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Demolition[1]						
Onsite[2]	2.72	26.59	20.87	0.02	2.53	1.64
Offsite[3]	0.30	3.40	3.73	0.01	0.42	0.15
Total	**3.02**	**29.99**	**24.60**	**0.03**	**2.95**	**1.79**
Grading[1]						
Onsite	1.88	19.79	13.18	0.01	2.98	1.97
Offsite	0.08	0.52	1.08	0.00	0.14	0.04
Total	**1.96**	**20.31**	**14.26**	**0.01**	**3.12**	**2.01**
Building Construction						
Onsite	2.95	19.11	14.31	0.02	1.23	1.18
Offsite	0.15	0.68	2.09	0.01	0.36	0.10
Total	**3.10**	**19.79**	**16.40**	**0.03**	**1.59**	**1.28**
Paving						
Onsite	1.33	12.10	9.03	0.01	0.73	0.68
Offsite	0.04	0.06	0.65	0.00	0.15	0.04
Total	**1.37**	**12.16**	**9.68**	**0.01**	**0.88**	**0.72**
Architectural Coatings						
Onsite	46.67	2.19	1.87	0.00	0.17	0.17
Offsite	0.02	0.02	0.25	0.00	0.06	0.02
Total	**46.69**	**2.21**	**2.12**	**0.00**	**0.23**	**0.19**
Combined Building Construction, Paving, and Architectural Coatings	**51.16**	**34.16**	**28.20**	**0.04**	**2.70**	**2.19**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Demolition and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2013.2.2.

Table I shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NOx, CO, PM10, and PM2.5. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table J shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds that have been detailed above in Section 6.2. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table J also shows the combined local criteria pollutant emissions from building construction, paving and architectural coating phases of construction.

Table J – Construction-Related Local Criteria Pollutant Emissions

Phase	Pollutant Emissions (pounds/day)			
	NOx	**CO**	**PM10**	**PM2.5**
Demolition	26.59	20.87	2.53	1.64
Grading	19.79	13.18	2.98	1.97
Building Construction	19.11	14.31	1.23	1.18
Paving	12.10	9.03	0.73	0.68
Architectural Coatings	2.19	1.87	0.17	0.17
Combined Building Construction, Paving, and Architectural Coatings	**33.40**	**25.21**	**2.13**	**2.03**
SCAQMD Thresholds for 25 meters (82 feet) or less[2]	**131**	**962**	**7**	**5**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Demolition and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] The nearest sensitive receptors are single-family homes located as near as 80 feet east of the project site. According to LST methodology any receptor closer than 25 meters should be based on the 25-meter threshold.
Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in North Coastal Orange County.

The data provided in Table J shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds for any phase of construction. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Operational Emissions

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts

with the on-going operations of the proposed project. The potential operations-related air emissions have been analyzed below for the regional and local criteria pollutant emissions and cumulative impacts.

Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 5.2. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table K and the CalEEMod daily emissions printouts are shown in Appendix A.

Table K – Operational Air Pollution Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	1.87	0.03	2.33	0.00	0.01	0.01
Energy Usage[2]	0.02	0.14	0.06	0.00	0.01	0.01
Mobile Sources[3]	0.65	1.58	7.21	0.02	1.56	0.43
Total Emissions	**2.54**	**1.75**	**9.60**	**0.02**	**1.58**	**0.45**
SCQAMD Operational Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from hearths, consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (excluding hearths).
[3] Mobile sources consist of emissions from vehicles and road dust.
Source: Calculated from CalEEMod Version 2013.2.2.

The data provided in Table K above shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los

Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards[1]. Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Air Quality Impacts from Onsite Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from on-site operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table L shows the on-site emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating on-site and the calculated emissions thresholds.

Table L – Local Operations Criteria Pollutant Emission Levels at the Nearest Homes

On-Site Emission Source	Pollutant Emissions (pounds/day)			
	NOx	**CO**	**PM10**	**PM2.5**
Area Sources	0.03	2.33	0.01	0.01
Energy Usage	0.14	0.06	0.01	0.01
Onsite Vehicle Emissions[1]	0.20	0.90	0.20	0.06
Total Emissions	**0.37**	**3.29**	**0.22**	**0.08**
SCAQMD Thresholds for 25 meters (82 feet) or less[2]	**131**	**962**	**2**	**2**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Onsite vehicle emissions based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the project site.
[2] The nearest sensitive receptors are single-family homes as near as 80 feet east of the project site. According to LST methodology any receptor closer than 25 meters should be based on the 25-meter threshold.
Source: Calculated from CalEEMod2013 and SCAQMD's Mass Rate Look-up Tables for two acres in North Coastal Orange County.

The data provided in Table L shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 6.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Level of Significance

Less than significant impact.

[1] The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

7.4 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature. The project area is out of attainment for ozone and PM10 and PM2.5 particulate matter. In accordance with CEQA Guidelines Section 15130(b), this analysis of cumulative impacts incorporates a three-tiered approach to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operations;
- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants.

Consistency with Project Specific Thresholds

Construction-Related Impacts

The project site is located in the South Coast Air Basin, which is currently designated by the EPA for federal standards as a non-attainment area for ozone and PM2.5 and by CARB for the state standards as a non-attainment area for ozone, PM10, and PM2.5. The regional ozone, PM10, and PM2.5 emissions associated with the proposed project have been calculated above in Section 7.3. The above analysis found that development of the proposed project would result in less than significant regional emissions of the precursors to ozone, PM10, and PM2.5 during construction of the proposed project. Therefore, a less than significant cumulative impact would occur from construction of the proposed project.

Operational-Related Impacts

The greatest cumulative operational impact on the air quality to the Air Basin will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development. In accordance with SCAQMD methodology, projects that do not exceed SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The data provided in Section 7.3 above shows that for the on-going operations activities for the proposed project, the VOC, NOx, CO, SO_2, PM10, and PM2.5 emissions would not exceed the SCAQMD thresholds of significance discussed above in Section 6.1. With respect to long-term emissions, this project would create a less than significant cumulative impact.

Consistency with Air Quality Plans

As detailed above in Section 7.2, the project site is currently designated as Neighborhood Commercial in the General Plan and zoned Local Business (C1). The proposed project would require a General Plan Amendment that would re-designate the project site to High-Density Residential and rezoned to Multiple-Family Residential High Density (R2-HD). Although the proposed project is currently inconsistent with the General Plan land use designation and zoning for the project site, the proposed project would be consistent with the adjacent residential land uses and would be in substantial compliance with the Land Use Element goals and policies. Therefore, due to the proposed project's nominal size and consistency with the surrounding neighborhood, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. Furthermore,

the proposed project consists of an infill residential development in an area of Southern California that has a shortage of housing.

Cumulative Health Impacts

The Air Basin is designated as nonattainment for ozone, PM10, and PM2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (elderly, children, and the sick). Therefore, when the concentrations of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects. The regional analysis detailed above in Section 7.3 found that the proposed project would not exceed the SCAQMD regional significance thresholds for VOC and NOx (ozone precursors), PM10 and PM2.5. As such, the proposed project would result in a less than significant cumulative health impact.

Level of Significance

Less than significant impact.

7.5 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 7.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest offsite sensitive receptors to the project site consist of single-family homes, located as near as 80 feet east of the project site and multi-family homes, located as near as 110 feet south of the project site.

Construction-Related Sensitive Receptor Impacts

Construction of the proposed project may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

<u>Local Criteria Pollutant Impacts from Construction</u>

The local air quality impacts from construction of the proposed project has been analyzed above in Section 7.3 and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 6.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

<u>Toxic Air Contaminants Impacts from Construction</u>

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits

idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 7.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 7.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 6.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips generated by the proposed residential project, a less than significant toxic air contaminant impact would occur during the on-going operations of the proposed project and no mitigation would be required.

It should also be noted that the proposed project would consist of the development of single-family homes as near as 110 feet from the US Gas gasoline fuel dispensers, which are a known source of TAC emissions. Per the California Supreme Court decision for *California Building Industry Association v. Bay Area Air Quality Management District*, that was issued on December 17, 2015, the Court found that CEQA does not provide a "general requirement that an agency analyze existing environmental conditions whenever they pose a risk to the future residents or users of a project." The State has adopted specific statutes that provide an exemption to this rule such as for schools and homes near airports. As to date

there are no exemptions to this rule for TAC gas station emission sources near homes. However, in order to provide a conservative analysis the gas station TAC emissions impacts to the nearby homes have been analyzed by SCAQMD methodology provided before the December 2015 Court ruling.

The US Gas Station consists of 8 fueling stations, which would categorize it as a typical gas station that has a throughput of one million gallons of gasoline per year. The *Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations* (Gas Station Risk Assessment), prepared by SCAQMD, January 2007, analyzed the TAC emissions and associated cancer risks from gasoline dispensing facilities at locations throughout the Air Basin. According to the Gas Station Risk Assessment, a gas station located in Costa Mesa, with a one million gallon per year throughput would create a residential cancer risk of 2.61 per million persons at a home located 30 meters (98 feet) downwind from the gas fuel dispensers (closest distance available to 110 feet in the Gas Station Risk Assessment Table).

As detailed above in Section 6.3 a significant cancer risk impact would occur if a project's TAC emissions would increase the Maximum Incremental Cancer Risk by 10 in one million or greater. As detailed above, this threshold is for analyzing projects that emit TAC emissions and is not to be used for a threshold for projects with sensitive receptors that are impacted by existing TAC concentrations, however it has been included to provide a reference threshold. Since the cancer risk from the US Gas Station at the nearest proposed homes would be less than 2.61 per million persons, which is below the 10 per million persons threshold for projects that emit TAC emissions, it can be reasonably assumed that this would also be a less than significant impact to proposed homes constructed in the vicinity of a TAC emissions source. Therefore, the TAC emissions and associated cancer risks from the US Gas Station would result in a less than significant impact to the proposed homes.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

7.6 Objectionable Odors

The proposed project would not create objectionable odors affecting a substantial number of people. Potential odor impacts have been analyzed separately for construction and operations below.

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a

characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Potential Operations-Related Odor Impacts

The proposed project would consist of an infill residential development and the operation of the proposed project would not introduce any new sources of odors to the project vicinity. Therefore, a less than significant odor impact would occur from operation of the proposed project and no mitigation would be required.

Level of Significance

Less than significant impact.

7.7 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would result in the development of eight detached single-family homes with 2,020 square feet of living space and twenty three-story attached single-family homes with 1,863 square feet of living space. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

The project's GHG emissions have been calculated with the CalEEMod model based on the parameters detailed in Section 5.1 for construction emissions and Section 5.2 for operational emissions. A summary of the results is shown below in Table M and the CalEEMod model run annual printouts for the proposed project is provided in Appendix B.

Table M – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	0.47	0.00	0.00	0.48
Energy Usage[2]	70.20	0.00	0.00	70.54
Mobile Sources[3]	278.97	0.01	0.00	279.13
Solid Waste[4]	3.78	0.22	0.00	8.48
Water and Wastewater[5]	11.03	0.06	0.00	12.76
Construction[6]	9.08	0.00	0.00	9.11
Total Emissions	**373.53**	**0.29**	**0.00**	**380.50**
SCAQMD Draft Residential Threshold of Significance				**3,500**

Notes:
[1] Area sources consist of GHG emissions from hearths, consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of GHG emissions from electricity and natural gas usage.

[3] Mobile sources consist of GHG emissions from vehicles.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[6] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2013.2.2 for year 2018.

The data provided in Table M above shows that the proposed project would create 380.50 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 5.0, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations of the proposed residential development would exceed 3,500 $MTCO_2e$ per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development and operation of the proposed project.

Level of Significance

Less than significant impact.

7.8 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. There is currently no adopted local greenhouse gas reductions plan for the City of Costa Mesa.

In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,500 $MTCO_2e$ for residential land use type projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, they have not been formally adopted because the SCAQMD was awaiting the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015 and the SCAQMD Board has not yet approved these thresholds.

According to the project GHG emissions calculations above, implementation of the proposed project would result in the generation of 380.50 $MTCO_2e$ per year. The proposed project would be below the SCAQMD's proposed threshold of 3,500 $MTCO_2e$. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

As detailed above, development of the proposed project would meet the targets outlined in the GHG Reduction Plan and meet SCAQMD's bright line threshold. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Level of Significance

Less than significant impact.

8.0 REFERENCES

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APPENDIX A

CalEEMod Model Daily Printouts

Carnegie Avenue Residential Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.55	Acre	0.55	23,958.00	0
Condo/Townhouse	20.00	Dwelling Unit	0.70	37,260.00	57
Single Family Housing	8.00	Dwelling Unit	0.41	16,160.00	23

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 8 SFH on 0.41 acre & 16,150 sf. 20 Condo on 0.7 acre & 37,260 sf. Asphalt 0.55 acre & 23,958 sq ft

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trucks added to Demolition and Grading phases to account for water truck emissions

Demolition - Demo of building 954 tons + demo of parking lot 1,263 tons = 2,218 tons of debris

Grading -

Woodstoves - No fireplaces will be installed into the homes.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Minimum requirements, water three times per day was selected.

Vehicle Trips - Project will generate 213 ADT. Trip Rate set to 7.61 trips per home

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblFireplaces	NumberGas	17.00	0.00
tblFireplaces	NumberGas	6.80	0.00
tblFireplaces	NumberNoFireplace	2.00	20.00
tblFireplaces	NumberNoFireplace	0.80	8.00
tblFireplaces	NumberWood	1.00	0.00
tblFireplaces	NumberWood	0.40	0.00
tblLandUse	LandUseSquareFeet	20,000.00	37,260.00
tblLandUse	LandUseSquareFeet	14,400.00	16,160.00
tblLandUse	LotAcreage	1.25	0.70
tblLandUse	LotAcreage	2.60	0.41
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	7.16	7.61
tblVehicleTrips	ST_TR	10.08	7.61
tblVehicleTrips	SU_TR	6.07	7.61
tblVehicleTrips	SU_TR	8.77	7.61
tblVehicleTrips	WD_TR	6.59	7.61
tblVehicleTrips	WD_TR	9.57	7.61
tblWoodstoves	NumberCatalytic	1.00	0.00
tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	1.00	0.00
tblWoodstoves	NumberNoncatalytic	0.40	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	46.6842	29.8779	24.1903	0.0356	5.0418	1.6561	6.1158	2.5601	1.5481	3.5482	0.0000	3,525.6334	3,525.6334	0.6365	0.0000	3,539.0000
Total	**46.6842**	**29.8779**	**24.1903**	**0.0356**	**5.0418**	**1.6561**	**6.1158**	**2.5601**	**1.5481**	**3.5482**	**0.0000**	**3,525.6334**	**3,525.6334**	**0.6365**	**0.0000**	**3,539.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	46.6842	29.8779	24.1903	0.0356	2.0437	1.6561	3.1178	1.0194	1.5481	2.0076	0.0000	3,525.6334	3,525.6334	0.6365	0.0000	3,539.0000
Total	**46.6842**	**29.8779**	**24.1903**	**0.0356**	**2.0437**	**1.6561**	**3.1178**	**1.0194**	**1.5481**	**2.0076**	**0.0000**	**3,525.6334**	**3,525.6334**	**0.6365**	**0.0000**	**3,539.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	59.46	0.00	49.02	60.18	0.00	43.42	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Energy	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
Mobile	0.6154	1.4999	7.2053	0.0215	1.5385	0.0225	1.5610	0.4105	0.0208	0.4313		1,746.3382	1,746.3382	0.0636		1,747.6738
Total	**2.5019**	**1.6652**	**9.5906**	**0.0225**	**1.5385**	**0.0464**	**1.5849**	**0.4105**	**0.0447**	**0.4552**	**0.0000**	**1,926.9914**	**1,926.9914**	**0.0711**	**3.2400e-003**	**1,929.4877**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Energy	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
Mobile	0.6154	1.4999	7.2053	0.0215	1.5385	0.0225	1.5610	0.4105	0.0208	0.4313		1,746.3382	1,746.3382	0.0636		1,747.6738
Total	**2.5019**	**1.6652**	**9.5906**	**0.0225**	**1.5385**	**0.0464**	**1.5849**	**0.4105**	**0.0447**	**0.4552**	**0.0000**	**1,926.9914**	**1,926.9914**	**0.0711**	**3.2400e-003**	**1,929.4877**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Grading	Grading	1/28/2017	2/9/2017	5	9	
3	Building Construction	Building Construction	2/10/2017	11/16/2017	5	200	
4	Paving	Paving	11/17/2017	11/30/2017	5	10	
5	Architectural Coating	Architectural Coating	12/1/2017	12/31/2017	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.38

Acres of Paving: 0

Residential Indoor: 108,176; Residential Outdoor: 36,059; Non-Residential Indoor: 35,937; Non-Residential Outdoor: 11,979 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	6.00	219.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3732	0.0000	2.3732	0.3593	0.0000	0.3593			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		1.6062	1.6062		1.5022	1.5022		2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**2.3732**	**1.6062**	**3.9794**	**0.3593**	**1.5022**	**1.8616**		**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1887	2.7673	2.0912	8.0500e-003	0.1908	0.0415	0.2323	0.0522	0.0382	0.0904		798.3729	798.3729	5.6600e-003		798.4917
Vendor	0.0484	0.4722	0.5770	1.3000e-003	0.0375	7.3400e-003	0.0449	0.0107	6.7500e-003	0.0174		127.9975	127.9975	8.9000e-004		128.0163
Worker	0.0411	0.0529	0.6510	1.7600e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		141.7948	141.7948	6.4400e-003		141.9300
Total	**0.2782**	**3.2924**	**3.3191**	**0.0111**	**0.3736**	**0.0499**	**0.4235**	**0.1015**	**0.0459**	**0.1473**		**1,068.1652**	**1,068.1652**	**0.0130**		**1,068.4380**

3.2 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9255	0.0000	0.9255	0.1401	0.0000	0.1401			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		1.6062	1.6062		1.5022	1.5022	0.0000	2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**0.9255**	**1.6062**	**2.5317**	**0.1401**	**1.5022**	**1.6424**	**0.0000**	**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1887	2.7673	2.0912	8.0500e-003	0.1908	0.0415	0.2323	0.0522	0.0382	0.0904		798.3729	798.3729	5.6600e-003		798.4917
Vendor	0.0484	0.4722	0.5770	1.3000e-003	0.0375	7.3400e-003	0.0449	0.0107	6.7500e-003	0.0174		127.9975	127.9975	8.9000e-004		128.0163
Worker	0.0411	0.0529	0.6510	1.7600e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		141.7948	141.7948	6.4400e-003		141.9300
Total	**0.2782**	**3.2924**	**3.3191**	**0.0111**	**0.3736**	**0.0499**	**0.4235**	**0.1015**	**0.0459**	**0.1473**		**1,068.1652**	**1,068.1652**	**0.0130**		**1,068.4380**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9148	0.0000	4.9148	2.5257	0.0000	2.5257			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0661	1.0661		0.9808	0.9808		1,439.1894	1,439.1894	0.4410		1,448.4496
Total	**1.8844**	**19.7889**	**13.1786**	**0.0141**	**4.9148**	**1.0661**	**5.9810**	**2.5257**	**0.9808**	**3.5065**		**1,439.1894**	**1,439.1894**	**0.4410**		**1,448.4496**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0484	0.4722	0.5770	1.3000e-003	0.0375	7.3400e-003	0.0449	0.0107	6.7500e-003	0.0174		127.9975	127.9975	8.9000e-004		128.0163
Worker	0.0253	0.0326	0.4006	1.0900e-003	0.0894	6.1000e-004	0.0900	0.0237	5.6000e-004	0.0243		87.2583	87.2583	3.9600e-003		87.3415
Total	**0.0737**	**0.5048**	**0.9775**	**2.3900e-003**	**0.1269**	**7.9500e-003**	**0.1349**	**0.0344**	**7.3100e-003**	**0.0417**		**215.2559**	**215.2559**	**4.8500e-003**		**215.3578**

3.3 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9168	0.0000	1.9168	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0661	1.0661		0.9808	0.9808	0.0000	1,439.1894	1,439.1894	0.4410		1,448.4496
Total	**1.8844**	**19.7889**	**13.1786**	**0.0141**	**1.9168**	**1.0661**	**2.9829**	**0.9850**	**0.9808**	**1.9658**	**0.0000**	**1,439.1894**	**1,439.1894**	**0.4410**		**1,448.4496**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0484	0.4722	0.5770	1.3000e-003	0.0375	7.3400e-003	0.0449	0.0107	6.7500e-003	0.0174		127.9975	127.9975	8.9000e-004		128.0163
Worker	0.0253	0.0326	0.4006	1.0900e-003	0.0894	6.1000e-004	0.0900	0.0237	5.6000e-004	0.0243		87.2583	87.2583	3.9600e-003		87.3415
Total	**0.0737**	**0.5048**	**0.9775**	**2.3900e-003**	**0.1269**	**7.9500e-003**	**0.1349**	**0.0344**	**7.3100e-003**	**0.0417**		**215.2559**	**215.2559**	**4.8500e-003**		**215.3578**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823		2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**2.9546**	**19.1088**	**14.3110**	**0.0220**		**1.2257**	**1.2257**		**1.1823**	**1.1823**		**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0565	0.5509	0.6731	1.5100e-003	0.0438	8.5700e-003	0.0523	0.0125	7.8800e-003	0.0203		149.3305	149.3305	1.0400e-003		149.3524
Worker	0.0853	0.1099	1.3520	3.6600e-003	0.3018	2.0600e-003	0.3039	0.0800	1.9000e-003	0.0819		294.4969	294.4969	0.0134		294.7776
Total	**0.1418**	**0.6608**	**2.0251**	**5.1700e-003**	**0.3456**	**0.0106**	**0.3562**	**0.0925**	**9.7800e-003**	**0.1023**		**443.8273**	**443.8273**	**0.0144**		**444.1300**

3.4 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823	0.0000	2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**2.9546**	**19.1088**	**14.3110**	**0.0220**		**1.2257**	**1.2257**		**1.1823**	**1.1823**	**0.0000**	**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0565	0.5509	0.6731	1.5100e-003	0.0438	8.5700e-003	0.0523	0.0125	7.8800e-003	0.0203		149.3305	149.3305	1.0400e-003		149.3524
Worker	0.0853	0.1099	1.3520	3.6600e-003	0.3018	2.0600e-003	0.3039	0.0800	1.9000e-003	0.0819		294.4969	294.4969	0.0134		294.7776
Total	**0.1418**	**0.6608**	**2.0251**	**5.1700e-003**	**0.3456**	**0.0106**	**0.3562**	**0.0925**	**9.7800e-003**	**0.1023**		**443.8273**	**443.8273**	**0.0144**		**444.1300**

3.5 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1857	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755		1,347.6575	1,347.6575	0.4052		1,356.1677
Paving	0.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3298**	**12.0981**	**9.0308**	**0.0133**		**0.7333**	**0.7333**		**0.6755**	**0.6755**		**1,347.6575**	**1,347.6575**	**0.4052**		**1,356.1677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0411	0.0529	0.6510	1.7600e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		141.7948	141.7948	6.4400e-003		141.9300
Total	**0.0411**	**0.0529**	**0.6510**	**1.7600e-003**	**0.1453**	**9.9000e-004**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**141.7948**	**141.7948**	**6.4400e-003**		**141.9300**

3.5 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1857	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755	0.0000	1,347.6575	1,347.6575	0.4052		1,356.1677
Paving	0.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3298**	**12.0981**	**9.0308**	**0.0133**		**0.7333**	**0.7333**		**0.6755**	**0.6755**	**0.0000**	**1,347.6575**	**1,347.6575**	**0.4052**		**1,356.1677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0411	0.0529	0.6510	1.7600e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		141.7948	141.7948	6.4400e-003		141.9300
Total	**0.0411**	**0.0529**	**0.6510**	**1.7600e-003**	**0.1453**	**9.9000e-004**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**141.7948**	**141.7948**	**6.4400e-003**		**141.9300**

3.6 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	46.3361					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**46.6684**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0158	0.0204	0.2504	6.8000e-004	0.0559	3.8000e-004	0.0563	0.0148	3.5000e-004	0.0152		54.5365	54.5365	2.4800e-003		54.5884
Total	**0.0158**	**0.0204**	**0.2504**	**6.8000e-004**	**0.0559**	**3.8000e-004**	**0.0563**	**0.0148**	**3.5000e-004**	**0.0152**		**54.5365**	**54.5365**	**2.4800e-003**		**54.5884**

3.6 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	46.3361					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**46.6684**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0158	0.0204	0.2504	6.8000e-004	0.0559	3.8000e-004	0.0563	0.0148	3.5000e-004	0.0152		54.5365	54.5365	2.4800e-003		54.5884
Total	**0.0158**	**0.0204**	**0.2504**	**6.8000e-004**	**0.0559**	**3.8000e-004**	**0.0563**	**0.0148**	**3.5000e-004**	**0.0152**		**54.5365**	**54.5365**	**2.4800e-003**		**54.5884**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6154	1.4999	7.2053	0.0215	1.5385	0.0225	1.5610	0.4105	0.0208	0.4313		1,746.3382	1,746.3382	0.0636		1,747.6738
Unmitigated	0.6154	1.4999	7.2053	0.0215	1.5385	0.0225	1.5610	0.4105	0.0208	0.4313		1,746.3382	1,746.3382	0.0636		1,747.6738

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	152.20	152.20	152.20	520,091	520,091
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	60.88	60.88	60.88	208,036	208,036
Total	213.08	213.08	213.08	728,127	728,127

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510011	0.056836	0.192178	0.151564	0.041643	0.005905	0.015642	0.015146	0.001440	0.002149	0.004721	0.000504	0.002262

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
NaturalGas Unmitigated	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	867.133	9.3500e-003	0.0799	0.0340	5.1000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003		102.0156	102.0156	1.9600e-003	1.8700e-003	102.6365
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	633.063	6.8300e-003	0.0583	0.0248	3.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003		74.4780	74.4780	1.4300e-003	1.3700e-003	74.9313
Total		**0.0162**	**0.1383**	**0.0588**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.4936**	**176.4936**	**3.3900e-003**	**3.2400e-003**	**177.5677**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.633063	6.8300e-003	0.0583	0.0248	3.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003		74.4780	74.4780	1.4300e-003	1.3700e-003	74.9313
Condo/Townhouse	0.867133	9.3500e-003	0.0799	0.0340	5.1000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003		102.0156	102.0156	1.9600e-003	1.8700e-003	102.6365
Total		**0.0162**	**0.1383**	**0.0588**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.4936**	**176.4936**	**3.3900e-003**	**3.2400e-003**	**177.5677**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Unmitigated	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2666					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5321					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0717	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127		4.1596	4.1596	4.1200e-003		4.2462
Total	**1.8704**	**0.0270**	**2.3264**	**1.2000e-004**		**0.0127**	**0.0127**		**0.0127**	**0.0127**	**0.0000**	**4.1596**	**4.1596**	**4.1200e-003**	**0.0000**	**4.2462**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2666					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5321					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0717	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127		4.1596	4.1596	4.1200e-003		4.2462
Total	**1.8704**	**0.0270**	**2.3264**	**1.2000e-004**		**0.0127**	**0.0127**		**0.0127**	**0.0127**	**0.0000**	**4.1596**	**4.1596**	**4.1200e-003**	**0.0000**	**4.2462**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Carnegie Avenue Residential Project

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.55	Acre	0.55	23,958.00	0
Condo/Townhouse	20.00	Dwelling Unit	0.70	37,260.00	57
Single Family Housing	8.00	Dwelling Unit	0.41	16,160.00	23

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 8 SFH on 0.41 acre & 16,150 sf. 20 Condo on 0.7 acre & 37,260 sf. Asphalt 0.55 acre & 23,958 sq ft

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trucks added to Demolition and Grading phases to account for water truck emissions

Demolition - Demo of building 954 tons + demo of parking lot 1,263 tons = 2,218 tons of debris

Grading -

Woodstoves - No fireplaces will be installed into the homes.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Minimum requirements, water three times per day was selected.

Vehicle Trips - Project will generate 213 ADT. Trip Rate set to 7.61 trips per home

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblFireplaces	NumberGas	17.00	0.00
tblFireplaces	NumberGas	6.80	0.00
tblFireplaces	NumberNoFireplace	2.00	20.00
tblFireplaces	NumberNoFireplace	0.80	8.00
tblFireplaces	NumberWood	1.00	0.00
tblFireplaces	NumberWood	0.40	0.00
tblLandUse	LandUseSquareFeet	20,000.00	37,260.00
tblLandUse	LandUseSquareFeet	14,400.00	16,160.00
tblLandUse	LotAcreage	1.25	0.70
tblLandUse	LotAcreage	2.60	0.41
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	7.16	7.61
tblVehicleTrips	ST_TR	10.08	7.61
tblVehicleTrips	SU_TR	6.07	7.61
tblVehicleTrips	SU_TR	8.77	7.61
tblVehicleTrips	WD_TR	6.59	7.61
tblVehicleTrips	WD_TR	9.57	7.61
tblWoodstoves	NumberCatalytic	1.00	0.00
tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	1.00	0.00
tblWoodstoves	NumberNoncatalytic	0.40	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	46.6850	29.9886	24.5969	0.0355	5.0418	1.6562	6.1159	2.5601	1.5483	3.5483	0.0000	3,515.1380	3,515.1380	0.6366	0.0000	3,528.5069
Total	**46.6850**	**29.9886**	**24.5969**	**0.0355**	**5.0418**	**1.6562**	**6.1159**	**2.5601**	**1.5483**	**3.5483**	**0.0000**	**3,515.1380**	**3,515.1380**	**0.6366**	**0.0000**	**3,528.5069**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	46.6850	29.9886	24.5969	0.0355	2.0437	1.6562	3.1179	1.0194	1.5483	2.0076	0.0000	3,515.1380	3,515.1380	0.6366	0.0000	3,528.5069
Total	**46.6850**	**29.9886**	**24.5969**	**0.0355**	**2.0437**	**1.6562**	**3.1179**	**1.0194**	**1.5483**	**2.0076**	**0.0000**	**3,515.1380**	**3,515.1380**	**0.6366**	**0.0000**	**3,528.5069**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	59.46	0.00	49.02	60.18	0.00	43.42	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Energy	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
Mobile	0.6484	1.5838	7.1160	0.0205	1.5385	0.0226	1.5611	0.4105	0.0209	0.4314		1,670.3998	1,670.3998	0.0636		1,671.7361
Total	**2.5350**	**1.7491**	**9.5013**	**0.0215**	**1.5385**	**0.0465**	**1.5850**	**0.4105**	**0.0447**	**0.4552**	**0.0000**	**1,851.0530**	**1,851.0530**	**0.0711**	**3.2400e-003**	**1,853.5500**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Energy	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
Mobile	0.6484	1.5838	7.1160	0.0205	1.5385	0.0226	1.5611	0.4105	0.0209	0.4314		1,670.3998	1,670.3998	0.0636		1,671.7361
Total	**2.5350**	**1.7491**	**9.5013**	**0.0215**	**1.5385**	**0.0465**	**1.5850**	**0.4105**	**0.0447**	**0.4552**	**0.0000**	**1,851.0530**	**1,851.0530**	**0.0711**	**3.2400e-003**	**1,853.5500**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Grading	Grading	1/28/2017	2/9/2017	5	9	
3	Building Construction	Building Construction	2/10/2017	11/16/2017	5	200	
4	Paving	Paving	11/17/2017	11/30/2017	5	10	
5	Architectural Coating	Architectural Coating	12/1/2017	12/31/2017	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.38

Acres of Paving: 0

Residential Indoor: 108,176; Residential Outdoor: 36,059; Non-Residential Indoor: 35,937; Non-Residential Outdoor: 11,979 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	6.00	219.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3732	0.0000	2.3732	0.3593	0.0000	0.3593			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		1.6062	1.6062		1.5022	1.5022		2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**2.3732**	**1.6062**	**3.9794**	**0.3593**	**1.5022**	**1.8616**		**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2010	2.8620	2.4150	8.0300e-003	0.1908	0.0416	0.2324	0.0522	0.0383	0.0905		796.4682	796.4682	5.7400e-003		796.5886
Vendor	0.0535	0.4830	0.6993	1.2900e-003	0.0375	7.4200e-003	0.0449	0.0107	6.8200e-003	0.0175		126.9156	126.9156	9.2000e-004		126.9349
Worker	0.0432	0.0582	0.6114	1.6700e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		134.2862	134.2862	6.4400e-003		134.4213
Total	**0.2976**	**3.4032**	**3.7256**	**0.0110**	**0.3736**	**0.0500**	**0.4236**	**0.1015**	**0.0460**	**0.1475**		**1,057.6699**	**1,057.6699**	**0.0131**		**1,057.9449**

3.2 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9255	0.0000	0.9255	0.1401	0.0000	0.1401			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		1.6062	1.6062		1.5022	1.5022	0.0000	2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**0.9255**	**1.6062**	**2.5317**	**0.1401**	**1.5022**	**1.6424**	**0.0000**	**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2010	2.8620	2.4150	8.0300e-003	0.1908	0.0416	0.2324	0.0522	0.0383	0.0905		796.4682	796.4682	5.7400e-003		796.5886
Vendor	0.0535	0.4830	0.6993	1.2900e-003	0.0375	7.4200e-003	0.0449	0.0107	6.8200e-003	0.0175		126.9156	126.9156	9.2000e-004		126.9349
Worker	0.0432	0.0582	0.6114	1.6700e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		134.2862	134.2862	6.4400e-003		134.4213
Total	**0.2976**	**3.4032**	**3.7256**	**0.0110**	**0.3736**	**0.0500**	**0.4236**	**0.1015**	**0.0460**	**0.1475**		**1,057.6699**	**1,057.6699**	**0.0131**		**1,057.9449**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9148	0.0000	4.9148	2.5257	0.0000	2.5257			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0661	1.0661		0.9808	0.9808		1,439.1894	1,439.1894	0.4410		1,448.4496
Total	**1.8844**	**19.7889**	**13.1786**	**0.0141**	**4.9148**	**1.0661**	**5.9810**	**2.5257**	**0.9808**	**3.5065**		**1,439.1894**	**1,439.1894**	**0.4410**		**1,448.4496**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0535	0.4830	0.6993	1.2900e-003	0.0375	7.4200e-003	0.0449	0.0107	6.8200e-003	0.0175		126.9156	126.9156	9.2000e-004		126.9349
Worker	0.0266	0.0358	0.3762	1.0300e-003	0.0894	6.1000e-004	0.0900	0.0237	5.6000e-004	0.0243		82.6376	82.6376	3.9600e-003		82.7208
Total	**0.0801**	**0.5189**	**1.0755**	**2.3200e-003**	**0.1269**	**8.0300e-003**	**0.1350**	**0.0344**	**7.3800e-003**	**0.0418**		**209.5532**	**209.5532**	**4.8800e-003**		**209.6557**

3.3 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9168	0.0000	1.9168	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0661	1.0661		0.9808	0.9808	0.0000	1,439.1894	1,439.1894	0.4410		1,448.4496
Total	**1.8844**	**19.7889**	**13.1786**	**0.0141**	**1.9168**	**1.0661**	**2.9829**	**0.9850**	**0.9808**	**1.9658**	**0.0000**	**1,439.1894**	**1,439.1894**	**0.4410**		**1,448.4496**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0535	0.4830	0.6993	1.2900e-003	0.0375	7.4200e-003	0.0449	0.0107	6.8200e-003	0.0175		126.9156	126.9156	9.2000e-004		126.9349
Worker	0.0266	0.0358	0.3762	1.0300e-003	0.0894	6.1000e-004	0.0900	0.0237	5.6000e-004	0.0243		82.6376	82.6376	3.9600e-003		82.7208
Total	**0.0801**	**0.5189**	**1.0755**	**2.3200e-003**	**0.1269**	**8.0300e-003**	**0.1350**	**0.0344**	**7.3800e-003**	**0.0418**		**209.5532**	**209.5532**	**4.8800e-003**		**209.6557**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823		2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**2.9546**	**19.1088**	**14.3110**	**0.0220**		**1.2257**	**1.2257**		**1.1823**	**1.1823**		**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0624	0.5636	0.8158	1.5000e-003	0.0438	8.6500e-003	0.0524	0.0125	7.9600e-003	0.0204		148.0681	148.0681	1.0800e-003		148.0908
Worker	0.0897	0.1209	1.2698	3.4700e-003	0.3018	2.0600e-003	0.3039	0.0800	1.9000e-003	0.0819		278.9020	278.9020	0.0134		279.1827
Total	**0.1521**	**0.6844**	**2.0856**	**4.9700e-003**	**0.3456**	**0.0107**	**0.3563**	**0.0925**	**9.8600e-003**	**0.1024**		**426.9701**	**426.9701**	**0.0145**		**427.2735**

3.4 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823	0.0000	2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**2.9546**	**19.1088**	**14.3110**	**0.0220**		**1.2257**	**1.2257**		**1.1823**	**1.1823**	**0.0000**	**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0624	0.5636	0.8158	1.5000e-003	0.0438	8.6500e-003	0.0524	0.0125	7.9600e-003	0.0204		148.0681	148.0681	1.0800e-003		148.0908
Worker	0.0897	0.1209	1.2698	3.4700e-003	0.3018	2.0600e-003	0.3039	0.0800	1.9000e-003	0.0819		278.9020	278.9020	0.0134		279.1827
Total	**0.1521**	**0.6844**	**2.0856**	**4.9700e-003**	**0.3456**	**0.0107**	**0.3563**	**0.0925**	**9.8600e-003**	**0.1024**		**426.9701**	**426.9701**	**0.0145**		**427.2735**

3.5 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1857	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755		1,347.6575	1,347.6575	0.4052		1,356.1677
Paving	0.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3298**	**12.0981**	**9.0308**	**0.0133**		**0.7333**	**0.7333**		**0.6755**	**0.6755**		**1,347.6575**	**1,347.6575**	**0.4052**		**1,356.1677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0582	0.6114	1.6700e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		134.2862	134.2862	6.4400e-003		134.4213
Total	**0.0432**	**0.0582**	**0.6114**	**1.6700e-003**	**0.1453**	**9.9000e-004**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**134.2862**	**134.2862**	**6.4400e-003**		**134.4213**

3.5 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1857	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755	0.0000	1,347.6575	1,347.6575	0.4052		1,356.1677
Paving	0.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3298**	**12.0981**	**9.0308**	**0.0133**		**0.7333**	**0.7333**		**0.6755**	**0.6755**	**0.0000**	**1,347.6575**	**1,347.6575**	**0.4052**		**1,356.1677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0582	0.6114	1.6700e-003	0.1453	9.9000e-004	0.1463	0.0385	9.2000e-004	0.0395		134.2862	134.2862	6.4400e-003		134.4213
Total	**0.0432**	**0.0582**	**0.6114**	**1.6700e-003**	**0.1453**	**9.9000e-004**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**134.2862**	**134.2862**	**6.4400e-003**		**134.4213**

3.6 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	46.3361					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**46.6684**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0224	0.2351	6.4000e-004	0.0559	3.8000e-004	0.0563	0.0148	3.5000e-004	0.0152		51.6485	51.6485	2.4800e-003		51.7005
Total	**0.0166**	**0.0224**	**0.2351**	**6.4000e-004**	**0.0559**	**3.8000e-004**	**0.0563**	**0.0148**	**3.5000e-004**	**0.0152**		**51.6485**	**51.6485**	**2.4800e-003**		**51.7005**

3.6 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	46.3361					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**46.6684**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0224	0.2351	6.4000e-004	0.0559	3.8000e-004	0.0563	0.0148	3.5000e-004	0.0152		51.6485	51.6485	2.4800e-003		51.7005
Total	**0.0166**	**0.0224**	**0.2351**	**6.4000e-004**	**0.0559**	**3.8000e-004**	**0.0563**	**0.0148**	**3.5000e-004**	**0.0152**		**51.6485**	**51.6485**	**2.4800e-003**		**51.7005**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6484	1.5838	7.1160	0.0205	1.5385	0.0226	1.5611	0.4105	0.0209	0.4314		1,670.3998	1,670.3998	0.0636		1,671.7361
Unmitigated	0.6484	1.5838	7.1160	0.0205	1.5385	0.0226	1.5611	0.4105	0.0209	0.4314		1,670.3998	1,670.3998	0.0636		1,671.7361

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	152.20	152.20	152.20	520,091	520,091
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	60.88	60.88	60.88	208,036	208,036
Total	213.08	213.08	213.08	728,127	728,127

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510011	0.056836	0.192178	0.151564	0.041643	0.005905	0.015642	0.015146	0.001440	0.002149	0.004721	0.000504	0.002262

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677
NaturalGas Unmitigated	0.0162	0.1383	0.0588	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.4936	176.4936	3.3800e-003	3.2400e-003	177.5677

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	867.133	9.3500e-003	0.0799	0.0340	5.1000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003		102.0156	102.0156	1.9600e-003	1.8700e-003	102.6365
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	633.063	6.8300e-003	0.0583	0.0248	3.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003		74.4780	74.4780	1.4300e-003	1.3700e-003	74.9313
Total		**0.0162**	**0.1383**	**0.0588**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.4936**	**176.4936**	**3.3900e-003**	**3.2400e-003**	**177.5677**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.633063	6.8300e-003	0.0583	0.0248	3.7000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003		74.4780	74.4780	1.4300e-003	1.3700e-003	74.9313
Condo/Townhouse	0.867133	9.3500e-003	0.0799	0.0340	5.1000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003		102.0156	102.0156	1.9600e-003	1.8700e-003	102.6365
Total		**0.0162**	**0.1383**	**0.0588**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.4936**	**176.4936**	**3.3900e-003**	**3.2400e-003**	**177.5677**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462
Unmitigated	1.8704	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127	0.0000	4.1596	4.1596	4.1200e-003	0.0000	4.2462

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2666					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5321					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0717	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127		4.1596	4.1596	4.1200e-003		4.2462
Total	**1.8704**	**0.0270**	**2.3264**	**1.2000e-004**		**0.0127**	**0.0127**		**0.0127**	**0.0127**	**0.0000**	**4.1596**	**4.1596**	**4.1200e-003**	**0.0000**	**4.2462**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2666					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5321					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0717	0.0270	2.3264	1.2000e-004		0.0127	0.0127		0.0127	0.0127		4.1596	4.1596	4.1200e-003		4.2462
Total	**1.8704**	**0.0270**	**2.3264**	**1.2000e-004**		**0.0127**	**0.0127**		**0.0127**	**0.0127**	**0.0000**	**4.1596**	**4.1596**	**4.1200e-003**	**0.0000**	**4.2462**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX B

CalEEMod Model Annual Printouts

Carnegie Avenue Residential Project

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.55	Acre	0.55	23,958.00	0
Condo/Townhouse	20.00	Dwelling Unit	0.70	37,260.00	57
Single Family Housing	8.00	Dwelling Unit	0.41	16,160.00	23

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 8 SFH on 0.41 acre & 16,150 sf. 20 Condo on 0.7 acre & 37,260 sf. Asphalt 0.55 acre & 23,958 sq ft

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trucks added to Demolition and Grading phases to account for water truck emissions

Demolition - Demo of building 954 tons + demo of parking lot 1,263 tons = 2,218 tons of debris

Grading -

Woodstoves - No fireplaces will be installed into the homes.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Minimum requirements, water three times per day was selected.

Vehicle Trips - Project will generate 213 ADT. Trip Rate set to 7.61 trips per home

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblFireplaces	NumberGas	17.00	0.00
tblFireplaces	NumberGas	6.80	0.00
tblFireplaces	NumberNoFireplace	2.00	20.00
tblFireplaces	NumberNoFireplace	0.80	8.00
tblFireplaces	NumberWood	1.00	0.00
tblFireplaces	NumberWood	0.40	0.00
tblLandUse	LandUseSquareFeet	20,000.00	37,260.00
tblLandUse	LandUseSquareFeet	14,400.00	16,160.00
tblLandUse	LotAcreage	1.25	0.70
tblLandUse	LotAcreage	2.60	0.41
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	7.16	7.61
tblVehicleTrips	ST_TR	10.08	7.61
tblVehicleTrips	SU_TR	6.07	7.61
tblVehicleTrips	SU_TR	8.77	7.61
tblVehicleTrips	WD_TR	6.59	7.61
tblVehicleTrips	WD_TR	9.57	7.61
tblWoodstoves	NumberCatalytic	1.00	0.00
tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	1.00	0.00
tblWoodstoves	NumberNoncatalytic	0.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.8458	2.4567	2.0184	3.2400e-003	0.0853	0.1505	0.2359	0.0256	0.1444	0.1699	0.0000	272.3019	272.3019	0.0498	0.0000	273.3477
Total	**0.8458**	**2.4567**	**2.0184**	**3.2400e-003**	**0.0853**	**0.1505**	**0.2359**	**0.0256**	**0.1444**	**0.1699**	**0.0000**	**272.3019**	**272.3019**	**0.0498**	**0.0000**	**273.3477**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.8458	2.4567	2.0184	3.2400e-003	0.0574	0.1505	0.2079	0.0164	0.1444	0.1608	0.0000	272.3017	272.3017	0.0498	0.0000	273.3475
Total	**0.8458**	**2.4567**	**2.0184**	**3.2400e-003**	**0.0574**	**0.1505**	**0.2079**	**0.0164**	**0.1444**	**0.1608**	**0.0000**	**272.3017**	**272.3017**	**0.0498**	**0.0000**	**273.3475**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.77**	**0.00**	**11.86**	**35.69**	**0.00**	**5.37**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3372	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815
Energy	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	70.2024	70.2024	2.4400e-003	9.3000e-004	70.5407
Mobile	0.1116	0.2939	1.3045	3.7700e-003	0.2751	4.1000e-003	0.2792	0.0735	3.7800e-003	0.0773	0.0000	278.9072	278.9072	0.0105	0.0000	279.1275
Waste						0.0000	0.0000		0.0000	0.0000	3.7817	0.0000	3.7817	0.2235	0.0000	8.4751
Water						0.0000	0.0000		0.0000	0.0000	0.5788	10.4543	11.0331	0.0599	1.5000e-003	12.7574
Total	**0.4518**	**0.3225**	**1.6060**	**3.9500e-003**	**0.2751**	**7.7300e-003**	**0.2828**	**0.0735**	**7.4100e-003**	**0.0809**	**4.3605**	**360.0356**	**364.3961**	**0.2968**	**2.4300e-003**	**371.3822**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3372	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815
Energy	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	70.2024	70.2024	2.4400e-003	9.3000e-004	70.5407
Mobile	0.1116	0.2939	1.3045	3.7700e-003	0.2751	4.1000e-003	0.2792	0.0735	3.7800e-003	0.0773	0.0000	278.9072	278.9072	0.0105	0.0000	279.1275
Waste						0.0000	0.0000		0.0000	0.0000	3.7817	0.0000	3.7817	0.2235	0.0000	8.4751
Water						0.0000	0.0000		0.0000	0.0000	0.5788	10.4543	11.0331	0.0599	1.5000e-003	12.7565
Total	**0.4518**	**0.3225**	**1.6060**	**3.9500e-003**	**0.2751**	**7.7300e-003**	**0.2828**	**0.0735**	**7.4100e-003**	**0.0809**	**4.3605**	**360.0356**	**364.3961**	**0.2968**	**2.4300e-003**	**371.3813**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Grading	Grading	1/28/2017	2/9/2017	5	9	
3	Building Construction	Building Construction	2/10/2017	11/16/2017	5	200	
4	Paving	Paving	11/17/2017	11/30/2017	5	10	
5	Architectural Coating	Architectural Coating	12/1/2017	12/31/2017	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.38

Acres of Paving: 0

Residential Indoor: 108,176; Residential Outdoor: 36,059; Non-Residential Indoor: 35,937; Non-Residential Outdoor: 11,979 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	6.00	219.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0237	0.0000	0.0237	3.5900e-003	0.0000	3.5900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.2659	0.2087	2.4000e-004		0.0161	0.0161		0.0150	0.0150	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4126
Total	**0.0272**	**0.2659**	**0.2087**	**2.4000e-004**	**0.0237**	**0.0161**	**0.0398**	**3.5900e-003**	**0.0150**	**0.0186**	**0.0000**	**22.2938**	**22.2938**	**5.6600e-003**	**0.0000**	**22.4126**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	0.0291	0.0234	8.0000e-005	1.8800e-003	4.2000e-004	2.2900e-003	5.2000e-004	3.8000e-004	9.0000e-004	0.0000	7.2355	7.2355	5.0000e-005	0.0000	7.2365
Vendor	5.2000e-004	4.9300e-003	6.7000e-003	1.0000e-005	3.7000e-004	7.0000e-005	4.4000e-004	1.1000e-004	7.0000e-005	1.7000e-004	0.0000	1.1571	1.1571	1.0000e-005	0.0000	1.1572
Worker	4.0000e-004	6.0000e-004	6.2400e-003	2.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2366	1.2366	6.0000e-005	0.0000	1.2378
Total	**2.8900e-003**	**0.0347**	**0.0363**	**1.1000e-004**	**3.6800e-003**	**5.0000e-004**	**4.1700e-003**	**1.0100e-003**	**4.6000e-004**	**1.4600e-003**	**0.0000**	**9.6291**	**9.6291**	**1.2000e-004**	**0.0000**	**9.6316**

3.2 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.2600e-003	0.0000	9.2600e-003	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.2659	0.2087	2.4000e-004		0.0161	0.0161		0.0150	0.0150	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4125
Total	**0.0272**	**0.2659**	**0.2087**	**2.4000e-004**	**9.2600e-003**	**0.0161**	**0.0253**	**1.4000e-003**	**0.0150**	**0.0164**	**0.0000**	**22.2938**	**22.2938**	**5.6600e-003**	**0.0000**	**22.4125**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	0.0291	0.0234	8.0000e-005	1.8800e-003	4.2000e-004	2.2900e-003	5.2000e-004	3.8000e-004	9.0000e-004	0.0000	7.2355	7.2355	5.0000e-005	0.0000	7.2365
Vendor	5.2000e-004	4.9300e-003	6.7000e-003	1.0000e-005	3.7000e-004	7.0000e-005	4.4000e-004	1.1000e-004	7.0000e-005	1.7000e-004	0.0000	1.1571	1.1571	1.0000e-005	0.0000	1.1572
Worker	4.0000e-004	6.0000e-004	6.2400e-003	2.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2366	1.2366	6.0000e-005	0.0000	1.2378
Total	**2.8900e-003**	**0.0347**	**0.0363**	**1.1000e-004**	**3.6800e-003**	**5.0000e-004**	**4.1700e-003**	**1.0100e-003**	**4.6000e-004**	**1.4600e-003**	**0.0000**	**9.6291**	**9.6291**	**1.2000e-004**	**0.0000**	**9.6316**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4800e-003	0.0891	0.0593	6.0000e-005		4.8000e-003	4.8000e-003		4.4100e-003	4.4100e-003	0.0000	5.8753	5.8753	1.8000e-003	0.0000	5.9131
Total	**8.4800e-003**	**0.0891**	**0.0593**	**6.0000e-005**	**0.0221**	**4.8000e-003**	**0.0269**	**0.0114**	**4.4100e-003**	**0.0158**	**0.0000**	**5.8753**	**5.8753**	**1.8000e-003**	**0.0000**	**5.9131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	2.2200e-003	3.0100e-003	1.0000e-005	1.7000e-004	3.0000e-005	2.0000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.5207	0.5207	0.0000	0.0000	0.5208
Worker	1.1000e-004	1.7000e-004	1.7300e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3424	0.3424	2.0000e-005	0.0000	0.3428
Total	**3.4000e-004**	**2.3900e-003**	**4.7400e-003**	**1.0000e-005**	**5.7000e-004**	**3.0000e-005**	**6.0000e-004**	**1.5000e-004**	**3.0000e-005**	**1.9000e-004**	**0.0000**	**0.8631**	**0.8631**	**2.0000e-005**	**0.0000**	**0.8635**

3.3 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.6300e-003	0.0000	8.6300e-003	4.4300e-003	0.0000	4.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4800e-003	0.0891	0.0593	6.0000e-005		4.8000e-003	4.8000e-003		4.4100e-003	4.4100e-003	0.0000	5.8752	5.8752	1.8000e-003	0.0000	5.9130
Total	**8.4800e-003**	**0.0891**	**0.0593**	**6.0000e-005**	**8.6300e-003**	**4.8000e-003**	**0.0134**	**4.4300e-003**	**4.4100e-003**	**8.8400e-003**	**0.0000**	**5.8752**	**5.8752**	**1.8000e-003**	**0.0000**	**5.9130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	2.2200e-003	3.0100e-003	1.0000e-005	1.7000e-004	3.0000e-005	2.0000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.5207	0.5207	0.0000	0.0000	0.5208
Worker	1.1000e-004	1.7000e-004	1.7300e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3424	0.3424	2.0000e-005	0.0000	0.3428
Total	**3.4000e-004**	**2.3900e-003**	**4.7400e-003**	**1.0000e-005**	**5.7000e-004**	**3.0000e-005**	**6.0000e-004**	**1.5000e-004**	**3.0000e-005**	**1.9000e-004**	**0.0000**	**0.8631**	**0.8631**	**2.0000e-005**	**0.0000**	**0.8635**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5473	184.5473	0.0387	0.0000	185.3605
Total	**0.2955**	**1.9109**	**1.4311**	**2.2000e-003**		**0.1226**	**0.1226**		**0.1182**	**0.1182**	**0.0000**	**184.5473**	**184.5473**	**0.0387**	**0.0000**	**185.3605**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0200e-003	0.0575	0.0781	1.5000e-004	4.3100e-003	8.6000e-004	5.1700e-003	1.2300e-003	7.9000e-004	2.0200e-003	0.0000	13.4989	13.4989	1.0000e-004	0.0000	13.5010
Worker	8.3800e-003	0.0124	0.1297	3.5000e-004	0.0296	2.1000e-004	0.0299	7.8700e-003	1.9000e-004	8.0600e-003	0.0000	25.6830	25.6830	1.2100e-003	0.0000	25.7084
Total	**0.0144**	**0.0699**	**0.2078**	**5.0000e-004**	**0.0340**	**1.0700e-003**	**0.0350**	**9.1000e-003**	**9.8000e-004**	**0.0101**	**0.0000**	**39.1819**	**39.1819**	**1.3100e-003**	**0.0000**	**39.2094**

3.4 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5471	184.5471	0.0387	0.0000	185.3603
Total	**0.2955**	**1.9109**	**1.4311**	**2.2000e-003**		**0.1226**	**0.1226**		**0.1182**	**0.1182**	**0.0000**	**184.5471**	**184.5471**	**0.0387**	**0.0000**	**185.3603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0200e-003	0.0575	0.0781	1.5000e-004	4.3100e-003	8.6000e-004	5.1700e-003	1.2300e-003	7.9000e-004	2.0200e-003	0.0000	13.4989	13.4989	1.0000e-004	0.0000	13.5010
Worker	8.3800e-003	0.0124	0.1297	3.5000e-004	0.0296	2.1000e-004	0.0299	7.8700e-003	1.9000e-004	8.0600e-003	0.0000	25.6830	25.6830	1.2100e-003	0.0000	25.7084
Total	**0.0144**	**0.0699**	**0.2078**	**5.0000e-004**	**0.0340**	**1.0700e-003**	**0.0350**	**9.1000e-003**	**9.8000e-004**	**0.0101**	**0.0000**	**39.1819**	**39.1819**	**1.3100e-003**	**0.0000**	**39.2094**

3.5 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
Paving	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.6500e-003**	**0.0605**	**0.0452**	**7.0000e-005**		**3.6700e-003**	**3.6700e-003**		**3.3800e-003**	**3.3800e-003**	**0.0000**	**6.1129**	**6.1129**	**1.8400e-003**	**0.0000**	**6.1515**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	3.0000e-004	3.1200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6183	0.6183	3.0000e-005	0.0000	0.6189
Total	**2.0000e-004**	**3.0000e-004**	**3.1200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6183**	**0.6183**	**3.0000e-005**	**0.0000**	**0.6189**

3.5 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
Paving	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.6500e-003**	**0.0605**	**0.0452**	**7.0000e-005**		**3.6700e-003**	**3.6700e-003**		**3.3800e-003**	**3.3800e-003**	**0.0000**	**6.1129**	**6.1129**	**1.8400e-003**	**0.0000**	**6.1515**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	3.0000e-004	3.1200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6183	0.6183	3.0000e-005	0.0000	0.6189
Total	**2.0000e-004**	**3.0000e-004**	**3.1200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6183**	**0.6183**	**3.0000e-005**	**0.0000**	**0.6189**

3.6 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4865					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0229	0.0196	3.0000e-005		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	2.6809	2.6809	2.8000e-004	0.0000	2.6869
Total	**0.4900**	**0.0229**	**0.0196**	**3.0000e-005**		**1.8200e-003**	**1.8200e-003**		**1.8200e-003**	**1.8200e-003**	**0.0000**	**2.6809**	**2.6809**	**2.8000e-004**	**0.0000**	**2.6869**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	2.4000e-004	2.5200e-003	1.0000e-005	5.8000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4994	0.4994	2.0000e-005	0.0000	0.4999
Total	**1.6000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4994**	**0.4994**	**2.0000e-005**	**0.0000**	**0.4999**

3.6 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4865					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0229	0.0196	3.0000e-005		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	2.6809	2.6809	2.8000e-004	0.0000	2.6869
Total	**0.4900**	**0.0229**	**0.0196**	**3.0000e-005**		**1.8200e-003**	**1.8200e-003**		**1.8200e-003**	**1.8200e-003**	**0.0000**	**2.6809**	**2.6809**	**2.8000e-004**	**0.0000**	**2.6869**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	2.4000e-004	2.5200e-003	1.0000e-005	5.8000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4994	0.4994	2.0000e-005	0.0000	0.4999
Total	**1.6000e-004**	**2.4000e-004**	**2.5200e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4994**	**0.4994**	**2.0000e-005**	**0.0000**	**0.4999**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1116	0.2939	1.3045	3.7700e-003	0.2751	4.1000e-003	0.2792	0.0735	3.7800e-003	0.0773	0.0000	278.9072	278.9072	0.0105	0.0000	279.1275
Unmitigated	0.1116	0.2939	1.3045	3.7700e-003	0.2751	4.1000e-003	0.2792	0.0735	3.7800e-003	0.0773	0.0000	278.9072	278.9072	0.0105	0.0000	279.1275

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	152.20	152.20	152.20	520,091	520,091
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	60.88	60.88	60.88	208,036	208,036
Total	213.08	213.08	213.08	728,127	728,127

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510011	0.056836	0.192178	0.151564	0.041643	0.005905	0.015642	0.015146	0.001440	0.002149	0.004721	0.000504	0.002262

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.9820	40.9820	1.8800e-003	3.9000e-004	41.1423
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.9820	40.9820	1.8800e-003	3.9000e-004	41.1423
NaturalGas Mitigated	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.2205	29.2205	5.6000e-004	5.4000e-004	29.3983
NaturalGas Unmitigated	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.2205	29.2205	5.6000e-004	5.4000e-004	29.3983

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	316503	1.7100e-003	0.0146	6.2100e-003	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003	0.0000	16.8898	16.8898	3.2000e-004	3.1000e-004	16.9926
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	231068	1.2500e-003	0.0107	4.5300e-003	7.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	12.3307	12.3307	2.4000e-004	2.3000e-004	12.4057
Total		**2.9600e-003**	**0.0252**	**0.0107**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**29.2205**	**29.2205**	**5.6000e-004**	**5.4000e-004**	**29.3983**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	231068	1.2500e-003	0.0107	4.5300e-003	7.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	12.3307	12.3307	2.4000e-004	2.3000e-004	12.4057
Condo/Townhouse	316503	1.7100e-003	0.0146	6.2100e-003	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003	0.0000	16.8898	16.8898	3.2000e-004	3.1000e-004	16.9926
Total		**2.9600e-003**	**0.0252**	**0.0107**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**29.2205**	**29.2205**	**5.6000e-004**	**5.4000e-004**	**29.3983**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	86492.6	24.7513	1.1400e-003	2.4000e-004	24.8482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	56717.4	16.2306	7.5000e-004	1.5000e-004	16.2942
Total		**40.9820**	**1.8900e-003**	**3.9000e-004**	**41.1423**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	86492.6	24.7513	1.1400e-003	2.4000e-004	24.8482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	56717.4	16.2306	7.5000e-004	1.5000e-004	16.2942
Total		**40.9820**	**1.8900e-003**	**3.9000e-004**	**41.1423**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3372	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815
Unmitigated	0.3372	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.9600e-003	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815
Total	**0.3372**	**3.3800e-003**	**0.2908**	**2.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**0.4717**	**0.4717**	**4.7000e-004**	**0.0000**	**0.4815**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.9600e-003	3.3800e-003	0.2908	2.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	0.4717	0.4717	4.7000e-004	0.0000	0.4815
Total	**0.3372**	**3.3800e-003**	**0.2908**	**2.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**0.4717**	**0.4717**	**4.7000e-004**	**0.0000**	**0.4815**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.0331	0.0599	1.5000e-003	12.7565
Unmitigated	11.0331	0.0599	1.5000e-003	12.7574

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.30308 / 0.821507	7.8808	0.0428	1.0700e-003	9.1125
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.521232 / 0.328603	3.1523	0.0171	4.3000e-004	3.6450
Total		**11.0331**	**0.0599**	**1.5000e-003**	**12.7574**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.30308 / 0.821507	7.8808	0.0428	1.0700e-003	9.1118
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.521232 / 0.328603	3.1523	0.0171	4.3000e-004	3.6447
Total		**11.0331**	**0.0599**	**1.5000e-003**	**12.7565**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.7817	0.2235	0.0000	8.4751
Unmitigated	3.7817	0.2235	0.0000	8.4751

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	9.2	1.8675	0.1104	0.0000	4.1852
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	9.43	1.9142	0.1131	0.0000	4.2899
Total		**3.7817**	**0.2235**	**0.0000**	**8.4751**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	9.2	1.8675	0.1104	0.0000	4.1852
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	9.43	1.9142	0.1131	0.0000	4.2899
Total		**3.7817**	**0.2235**	**0.0000**	**8.4751**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

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